RESET SMET Datalogger Replacement

I. Purpose:

This document describes the procedures for replacing the SMET datalogger.

II. Cautions and Hazards:

- Before starting the following procedure, make sure that the data logger data has been uploaded to ADaM recently. Accessing the ZENO software configuration can lead to deletion of all old data.

III. Requirements:

- A SMET datalogger.
- Calibration report for each sensor.
- Notebook PC with RS232/EIA422/Impulse adapter cable.
- Checkout equipment:
    1. Insulated box (e.g., an ice chest).
    2. Dewer flask.
    3. Watertight cover for T/RH probe (e.g., a balloon).
- Reference Digital Thermometer.
- Reference Digital Barometer.

IV. Procedure:

While conducting this procedure, log serial numbers and configuration differences on the Excel formatted replacement record forms (examples attached).

A. Steps:

1. If the ZENO in the datalogger replacement is still functioning, upload the Configuration to the notebook computer.
2. Using a text editor, change sensor calibration coefficients in the SMET configuration file for the replacement datalogger as necessary. The naming convention for the configuration file is METsssn.txt where "**sss**" is the three-digit serial number of the datalogger and "**n**" is an alphabetic version number, e.g., MET300a.txt is the first SMET configuration version for datalogger serial number 300. If any changes are made, save the new configuration file incrementing the version number by 1, e.g., the second

version of SMET configuration for datalogger serial number 300 is MET300b.txt.

3. Disconnect the cables and ground lead from the old datalogger.
4. Connect the ground to the replacement datalogger case.
5. Connect power to the datalogger.
6. Using the RS232/EIA422/Impulse adapter, connect a notebook computer to the datalogger.
7. Upload the proper SMET software configuration to the ZENO.
8. Connect the sensors to the datalogger. Refer to the SMET SENSOR CONFIGURATION TABLE, Attachment 1.
9. Follow procedure PRO(TRH)-004. to determine the calibration factor for the air temperature probe.
10. Use a digital voltmeter to measure the input power voltage. Adjust the calibration factor (Sensor 10) to obtain the proper external battery voltage reading. View the latter by selecting the Scaled Sensor Data option from the ZENO Test Menu.
11. Verify the SMET Barometric Pressure Sensor by comparing it with the Reference Digital Barometer.
12. Verify that the ZENO is measuring all signals properly by using the Test Menu and Output Message.
13. Verify that the ZENO is logging data using the Data Retrieval Menu.
14. If any change is made in the software configuration, e.g., a different calibration for the temperature sensor, update the Configuration Version Number in the logger.
15. Save the Configuration to EEPROM.
16. If any change is made in the software configuration, download the current configuration to the notebook computer using the naming convention given in step 2 above.
17. Disconnect the notebook computer and connect the logger to ADaM.
18. Download the current ZENO configuration file to ADaM.
19. Record the date, start-time, end-time, and any comments in the site operations log.
20. Enter a table of the serial numbers and calibrations for the sensors connected to the SMET datalogger into the appropriate logbook.

21. Send a copy or a listing of the sensor serial numbers and the configuration file to the SMET mentor.

V. References:

1. Hart, Dick

VI. Attachments:

1. SMET Sensor Configuration Table.

Attachment 1. SMET SENSOR CONFIGURATION TABLE

When installing or changing the following sensors or instruments, the calibration coefficients need to be written into the appropriate ZENO Sensor Menu. The calibration coefficient for the air temperature sensor is in the ZENO Process Menu. Details on determining and changing this coefficient is discussed separately.

Sensor or Instrument	Designation	Sensor No.	Connector No.
Wind Speed 1	WSPD1	1	3
Wind Direction 1	WDIR1	2	3
Wind Speed 2	WSPD2	3	4
Wind Direction 2	WDIR2	4	4
Relative Humidity	RH	7	2
Optical Rain Gauge	R-RATE	8	1